2012

Ag Engineering and Agronomy Farm and Central Iowa Research Farms Summary

Michael W. Fiscus
Iowa State University, mfiscus@iastate.edu

Richard D. Vandepol
Iowa State University, rvandepo@iastate.edu

Kent R. Berns
Iowa State University, krberns@iastate.edu

Ag Engineering and Agronomy Farm and Central Iowa Research Farms Summary

Abstract
Includes Ag Engineering and Agronomy Farm Farm and Weather Summary, Central Iowa Farms Farm and Weather Summary and Project Lists

Keywords
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Disciplines
Agriculture | Agronomy and Crop Sciences | Bioresource and Agricultural Engineering

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RFR-A11142

Farms Staff

Ag Engineering/Agronomy Farm
Manager, Agronomy Farm.....Mike Fiscus
Manager, Ag Engineering Farm ..... Richard VanDePol
Manager, Operations.....Will Emley
Manager, GPS technologies.....Nathan Meyers

Farm Equipment Mechanic.....Jeff Erb
Farm Equipment Operator ..... Dan Crosman
Farm Equipment Operator ..... Dale Niedermann

Central Iowa Farms
Superintendent and Isolation Plots Manager ..... Kent Berns
Farm Equipment Operator ..... John Reinhart

BioCentury Research Farm
Manager ..... Andrew Suby
Field Manager .....Nathan Meyers

Research Farms Coordinator..... Mark Honeyman
Farms Manager ..... Dennis Shannon

32 Curtiss Hall
Iowa State University

Ag Engineering/Agronomy Research Farm
1308 U Avenue
Boone, IA 50036
515-432-5350 Ag Engineering office phone
515-432-5348 Agronomy office phone
Location: West of Ames on Highway 30, across from the United Community School

Central Iowa Research Farms
in Story and Boone counties
ISU Curtiss Farm
2219 State Avenue
Iowa State University
Ames, IA 50014
515-290-5088

Ag Engineering and Agronomy Farm Farm and Weather Summary

Mike Fiscus, ag specialist
Richard VanDePol, ag specialist

Farm Comments

Field days and tours. We hosted a total of 324 visitors to the farm in 2011. The Iowa Learning Farm hosted a strip tillage/GPS technology field day in August, which attracted 150 visitors. Practical Farmers of Iowa hosted a field day in September, which highlighted conventional corn breeding germplasm. Other tours included two touring groups from Brazil, one group from Deerfield Retirement Community, and a 7th grade class of students from Des Moines, Iowa.

Developments. Nathan Meyers was added to the staff as a GPS specialist to facilitate the use of GPS technology in the research farm equipment fleet and also plot research equipment. He will assist with other aspects of the farm operation relating to plot layout, equipment maintenance, and operation.

A university-wide farm equipment auction was held in November in Ames, giving the Ag Engineering/Agronomy (AEA) Farm an opportunity to liquidate old farm equipment and other related items. Proceeds from the sale were used to help fund updating of the current farm fleet.

The AEA farm staff continued its support of the BioCentury Research Farm and the various projects associated with it through farm equipment and shop facility use.

Facilities. A new 12 ft × 70 ft weigh scale was installed at the BioCentury Research Farm site for use by the farm staff and research projects. New metal siding and roofing was added to the white barn south of the residence. Also, a fiber optic line was brought to the AEA main building for future application of fiber optic communication in 2012.

New projects. Mahdi Al-Kaisi began a research study involving the effects of corn growth and development planted in varying levels of corn cob residue. The study is done in conjunction with the POET bio-refinery to evaluate the affects of corn cob residue left over from corn cob piles stored on the ground in farmer fields.

Cover crop research continues through three different studies conducted by John Sawyer, Kathleen Delate, and Sarah Carlson.

Research continues on biomass harvest and transportation. These projects are led by Matt Darr and Stuart Birrell. Several major equipment companies are helping to support these projects.

Crop Season Comments

Oat seeding was completed April 5 and 6. Harvest began in mid-July, with yields of 58 to 85 bushels/acre.

Corn planting started May 4 and was completed May 19. Harvest began September 30 and was completed November 2. Yields were slightly above average with a range of 130–220 bushels/acre.

Soybean planting began May 10 and was completed June 2. Harvest began September 28 and was completed October 28. Average yields were 40–66 bushels/acre.

Weather Comments

Winter. A total snowfall of 31.8 inches was recorded with a total moisture equivalent of 3.35 in. January recorded the highest monthly snowfall total of 9.8 in.

Spring. A total of 9.82 in. of rainfall was recorded. The last frost date was May 4, with the last hard freeze on May 3. Soil temperatures at the 4-in. depth began to average 50°F on May 8.

Summer. A total of 12.5 in. of rain fell during the summer months of June, July, and August. Seventeen days were recorded during the summer with temperatures above 90 degrees F., resulting in one of the warmer summers in recent years.

Fall. A total of 5.6 in. of rain was recorded with the first snowfall on December 3.

A total of 31.94 in. of rain was recorded for 2011, 0.09 in. above normal.

Table 1. Monthly rainfall and average temperatures during the 2011 growing season at the Ag Engineering/Agronomy Research Farm, Boone, IA.

	Rainfall (in.)		Temperature (°F)		Days
Month	2011	Deviation from normal	2011	Deviation from normal	90°F or above
March	0.79	-1.28	37	1	0
April	4.41	1.25	48	-2	0
May	4.62	0.13	60	-1	2
June	5.05	-0.72	70	0	7
July	3.90	0.47	78	4	8
August	3.58	-0.05	72	0	2
September	2.02	-1.26	60	-4	3
October	0.86	-1.33	54	2	0
Totals	25.23	-2.79			22

Table 2. Ag Engineering/Agronomy Research Farm 11-yr summary of monthly precipitation.

Month	NR[1]	ANR[2]	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Jan	0.88	0.88	1.11	0.26	0.25	0.71	0.50	0.62	0.56	0.24	0.95	1.17	0.70
Feb	0.86	1.74	1.28	1.00	0.47	1.41	1.83	0.41	1.77	0.71	0.25	0.75	1.06
Mar	2.07	3.81	1.10	0.36	1.11	3.52	1.38	2.63	3.09	2.71	4.07	2.07	0.79
Apr	3.16	6.97	3.78	3.71	4.42	2.40	3.29	4.30	5.99	5.22	4.56	3.66	4.41
May	4.49	11.46	7.49	5.13	4.81	8.18	4.38	2.15	6.67	8.49	3.78	3.64	4.62
Jun	5.77	17.23	1.96	3.17	5.90	3.59	4.89	0.81	2.03	10.68	4.11	11.17	5.05
Jul	3.43	20.66	1.90	5.90	6.60	1.96	4.10	5.56	2.95	9.28	2.75	6.74	3.90
Aug	3.63	24.29	2.91	8.21	1.00	5.19	6.76	6.16	7.89	2.10	4.84	11.21	3.58
Sep	3.28	27.57	5.87	1.48	3.93	1.34	4.36	7.51	1.90	3.09	0.96	6.57	2.02
Oct	2.19	29.76	2.56	3.14	0.94	1.79	0.35	2.53	5.41	3.63	7.33	0.38	0.86
Nov	1.14	30.90	1.43	0.18	4.31	3.01	1.89	1.56	0.14	2.59	1.38	2.23	2.72
Dec	0.95	31.85	0.38	0.00	1.05	0.46	0.94	2.67	1.90	1.20	1.96	0.80	2.23
Total	31.85		31.77	32.54	34.79	33.56	34.67	36.91	40.30	49.94	36.94	50.39	31.94
Departure from Normal			-0.08	0.69	2.94	1.71	2.82	5.06	8.45	18.09	5.09	18.54	0.09

[1]NR = normal rainfall.
[2]ANR = accumulated normal rainfall

Central Iowa Farms
Farm and Weather Summary

Kent Berns, superintendent

Farm Comments

The ISU Central Iowa Farms consist of farmland in Story and Boone counties. There were 2,262 crop acres under Central Farms management with 370 acres devoted to intensive small plot research. The additional acres are used for large-scale research, equipment testing, silage production, and manure application. The student-managed Ag 450 Farm rented 285 acres, of which 103 acres were 50/50 sharecropped. The Ag 450 Farm also is hired to perform custom farm work on a portion of the Central Iowa Farm acres.

Highlights. The Agronomy Farm Mobile Plot Unit and the Central Iowa Farms were merged into one operation in 2010 due to a retirement. The integration has gone well.

We continue to make numerous tile repairs and improvements at many farms. An 11/15 row side-dress fertilizer applicator was purchased and used on 710 acres. A new 12-row planter was purchased and used on 1,245 acres. The planter is equipped with GPS controlled row clutches.

Projects. A project list is available in this report.

Crop Season Comments

The 2011 season was again very challenging. Very little corn was planted prior to May 1. Heavier precipitation occurred again during spraying season. The weather switched to hot and dry at corn pollination time. Japanese beetle populations were extremely high at many farms.

Corn planting began on May 1 and was completed on May 12. Corn silage yields averaged 24 tons/acre with 68 percent moisture. Corn silage was harvested on 325 acres. Corn grain yields averaged 186 bushels/acre and ranged from 139 to 208 bushels/acre.

Soybean planting began on May 8 and was completed on May 22. Soybean aphid levels remained low during the growing season. Yields averaged 55 bushels/acre. Fall harvesting of corn and soybeans began on September 25 and was completed on November 2.

Weather Comments

The Ag Engineering/Agronomy Farm weather summary (Table 1, page 3) represents the weather data for all of the farms in central Iowa covered by this report.

Project List

Project-Agronomy Farm	Department	Project Leader
Alternative biomass cropping systems	Agronomy	K. Moore/L. Schulte
Biomass research-corn production	Ag/Biosystems Engr	S. Birrell
Canola cropping systems research	Agronomy	M. Wiedenhoeft
Comparison of biofuel systems (COBS)	Ag Engr/Agronomy	M. Liebman/M. Helmers
Corn and soybean disease research	Plant Pathology	A. Robertson
Corn breeding	Agronomy	K. Lamkey
Corn breeding	Agronomy	T. Lubberstedt
Corn breeding	Agronomy	M. Lee
Corn breeding	Agronomy	J. Edwards
Corn breeding	Agronomy	P. Scott
Corn cob residue study	Agronomy	M. Al-Kaisi
Corn rootworm/disease research	Plant Pathology	N. Lauter
Corn stover residue removal study	Agronomy	M. Al-Kaisi/J. Sawyer
Corn/soybean cover crop research	Agronomy	J. Sawyer
Cover crop research	PFI	S. Carlson
Forage genetics/biomass research	Agronomy	K. Moore
Global Maize Study	Agronomy	J. Sawyer/R. Elmore
ISU Extension corn management research	Agronomy	R. Elmore
Long term nitrogen trials	Agronomy	J. Sawyer
Long-term continuous corn tillage study	Agronomy	M. Al-Kaisi
Long-term tillage study	Agronomy	M. Al-Kaisi
Maize genetics breeding	Agronomy	P. Peterson
Organic corn breeding	Agronomy	J. Edwards
Organic cover crop research	Agronomy	K. Delate
Small grains research	Agronomy	G. Patrick
Soil fertility	Agronomy	A. Mallarino
Sorghum breeding	Agronomy	M. Salas-Fernandez
Soybean breeding	USDA	R. Palmer
Soybean breeding	Agronomy	W. Fehr
Soybean cyst nematode trials	Plant Pathology	G. Tylka/S. Cianzio
Soybean disease research	Plant Pathology	L. Leandro
Soybean extension research	Agronomy	J. Lee
Soybean iron chlorosis plots	ICIA	J. Rouse
Soybean yield trials	ICIA	J. Rouse
Soybean/corn disease research	Plant Pathology	G. Munkvold
Sustainable ag cropping systems	Agronomy	M. Liebman
Switchgrass/miscanthus research	Agronomy	E. Heaton
Western bean cutworm research	USDA/Entomology	T. Sappington

Projects on site, Ag Engineering	**Project Leader**
Ag drainage well	M. Helmers
Biomass harvest systems	M. Darr
Biomass harvesting	S. Birrell/John Deere
COBS project-South Reynoldson Farm	M. Helmers/M. Thompson/M. Liebman
Manure/water quality	M. Helmers
Teaching (GPS technology)	M. Darr
Soil nutrient/biomass harvest	S. Birrell/D. Karlin/USDA
Wetlands	M. Helmers
L.E.B.R.C. Lab	Ag Engineering and Biosystems Engineering/VanDePol
USDA plots	USDA researchers and Syngenta
USDA/plant physiology	T. Kaspar

Project List

Project-Central Iowa Farms	Farm Location	Project Leader
Corn isolation plot (3)	AnS Teaching	K. Lamkey
Corn isolation plot	Beach Bottom	M. Blanco/F. Engstrom
Remote sensing	Been	B. Hornbuckle
Corn isolation plot	Bennett	T. Peterson
Corn isolation plot	Bennett	K. Wang/K. Warnberg
Isolation plots (4)	Bennett	J. Edwards
Manganese × glyphosate study	Bennett	M. Licht
Non SCN prep area	Bennett	G. Gebhart
Bean leaf beetle study	Curtiss	F. Nutter
Corn and soybean herbicide research	Curtiss	M. Owen
Corn isolation plot	Curtiss	T. Peterson
Genetics corn nursery	Curtiss	R. Wise
Genetics corn nursery	Curtiss	Plant Trans. Facility
Genetics corn nursery	Curtiss	P. Schnable
Genetics corn nursery	Curtiss	E. Vollbrecht
Iowa corn yield test	Curtiss	J. Rouse
Soybean × traffic (high loss)	Curtiss	S. Wiggs/D. Mueller
Soybean × wheel traffic	Curtiss	S. Wiggs/D. Mueller
Soybean diseases – SDS	Curtiss	L. Leandro
Soybean growout	Curtiss	ICIA
Soybean insect study	Curtiss	E. Hodgson/G. Vannostrand
Soybean seed treatment study	Curtiss	G. Munkvold
Biomass-corn stover	Dairy	M. Darr
Harvest guidance systems	Dairy	M. Darr
Isolation plot	Dairy	P. Weber/A. Gassman
Rodent survey	Dairy	B. Danielson
Weather station	Dairy	F. Goodman
Weed science plot	Dairy	J. Lux/M. Owen
Corn isolation plot	Equine	P. Schnable
Corn isolation plot	Equine	K. Warnberg
Isolation plot	Equine	P. Weber
Corn breeding	Finch	P. Schnable
Mesocosms	Hinds	W. Crumpton
Miscanthus nursery	Hinds	E. Heaton
Soybean diseases	Hinds	S. Navi
Soybean diseases	Hinds	X.B. Yang
Soybean diseases	Hinds	L. Leandro
Soybean pathology	Hinds	A. Robertson
Soybean pathology	Hinds	D. Mueller
Soybean pathology	Hinds	G. Tylka
Bean leaf beetle studies	Johnson	E. Hodgson
Corn borer moth trapping	Johnson	R. Ritland
Corn breeding	Johnson	P. Schnable

Project-Central Iowa Farms (cont'd)	Farm Location	Project Leader
Corn diseases	Johnson	G. Munkvold
Corn insect studies	Johnson	R. Hellmich
Corn insect studies	Johnson	E. Hodgson
Corn insect studies	Johnson	A. Gassman
Corn pathology studies	Johnson	G. Munkvold
Corn/corn tillage	Johnson	M. Licht
Double haploid corn nursery	Johnson	U. Frei/T. Lubberstadt
Nitrogen study	Johnson	M. Licht
No-till seed treatment	Johnson	G. Munkvold
SCN soybean plot	Johnson	G. Gebhart/G. Tylka
Seed treatment/corn nematode	Johnson	M. Licht
Study area and trap crop	Johnson	P. Weber/A. Gassman
Waterhemp growout	Johnson	R. Hartzler
Continuous corn no-till	Kelley	R. Hellmich/K. Bidne
Tile water study, nitrogen stabilizer study	Kelley	R. Hartwig
Poplar trials/forestry breeding	Moore Bottom	R. Hall
Corn isolation plot	Packer	T. Peterson
Corn isolation plot	Packer	J. Edwards
Biomass-switchgrass	South Woodruff	E. Heaton
Corn observation	South Woodruff	ICIA
Corn yield trial	South Woodruff	J. Edwards
SCN soybean study	South Woodruff	C. Marett
Corn isolation plot	Vet Med	E. Vollbrecht
Corn isolation plot	Vet Med	P. Becraft
Regulatory soybeans	West Curtiss	L. Li
Weed research	West Curtiss	M. Owen
Corn diseases	Woodruff	A. Robertson
Corn isolation plot	Woodruff	M. Blanco/F. Engstrom
Cyst nematode control studies	Woodruff	G. Tylka
Transgenic corn isolation nursery	Woodruff	P. Becraft
Transgenic corn isolation nursery	Woodruff	T. Peterson
Transgenic corn isolation nursery	Woodruff	E. Vollbrecht
Transgenic corn isolation nursery	Woodruff	A. Myers
Isolation plot	Zumwalt	P. Schnable